

On Three of Sir William Herschel's observed Nebulous Regions in Orion. By Dr. Max Wolf.

Dr. Roberts has recently published in the *Monthly Notices* (vol. lxiii. p. 26) an interesting paper upon Herschel's suspected nebulous regions. Photographing these regions systematically with his 20-inch reflector and 5-inch portrait lens, he has found that nearly all these places show absolutely no nebulosity. This seems to me strange, as both Professor Barnard and myself found the case to be the contrary. I had made contact prints from a photograph of the nebulosities connecting the great θ *Orion* nebula and the ζ *Orion* nebula. My photograph (Plate II) covers three of Herschel's regions, which Roberts finds free from nebulosity, viz. :

Herschel's No.	R.A. 1900. h m s	Decl. 1900.	Herschel's Description.	Roberts' Description.
22	5 28 53	-6 56	Affected with milky nebulosity.	No nebulosity.
23	5 30 10	-2 43	Affected.	No nebulosity.
24	5 31 56	-4 18	Visible and unequally bright nebulosity. I am pretty sure that this joins to the great nebula in <i>Orion</i> .	No nebulosity.

The original plate was taken 1901 January 16 with the α -lens of the Bruce telescope of 16-inch aperture, exposure 6 hours 15 minutes.

Herschel's No. 22 : From the great *Orion* nebula in a south-western direction all is filled with whitish nebulosity, connecting the great *Orion* nebula with the neck and head of the great snake which lies round *Orion*, with ζ *Orionis* as centre. This snakelike nebulous wing was first photographed by Barnard and Pickering and afterwards independently by myself, using small portrait lenses. Herschel's No. 22 is in this connecting nebulosity. It is shown on half a dozen or more plates taken since 1891, and it can be seen very well on the plate given here.

Herschel's No. 23 lies east of σ *Orionis*. We see at once that there is bright nebulosity on the plate. We find between ζ and ϵ *Orionis* and the θ *Orion* nebula a beautiful weaving of nebulous masses, with rifts and channels and islands, the two great *Orion* nebulae appearing only as concentrated clouds in this enormous nebulosity.

Herschel's No. 24 belongs to the same mass and consists of fine nebulous structures.

We find therefore relatively bright nebulae in these three regions. They are not at all faint or diffuse, but are easily detected by photography, and show a fine network of the same kind as the great *Orion* nebula itself.

At the northern edge of the plate is that remarkable stream of nebulosity running nearly in a straight line southward from ζ *Orionis*. The curious embayment (*a* in the key map) is distinctly visible on the accompanying plate. Dr. Roberts' photograph does not show the whole of the southern part on account of the restricted size of his field. The linear nebulous arm is really curved farther south, going more eastward, and in this stream, in

$$\alpha = 5^{\text{h}} 37^{\text{m}} \quad \delta = -3^{\circ} 7' (1900.0)$$

is a second bay (*b* in the key map) similar in form and size to the other.* This bay contains three fine stars free of nebulosity. The eastern neighbourhood shows several curved rifts in the nebulosity. It is impossible here to describe the whole in detail, but I would call attention to three places where the woven nebulosity is exceptionally beautiful:

R.A. 1900. h	Decl. 1900.
(a) 5 33.6	—5° 18'
(b) 5 31.5	—6 43
(c) 5 33.7	—7 9

The concentration (*a*) forms a striking flat ring resembling a smoke ring. The concentration (*b*) is a pretty cloud somewhat similar to the "trifid" nebulae. Its centre is the B.D. star $-6^{\circ}.1252$ of the 9.3 magnitude. The third concentration (*c*), consisting of several bright clouds and dark channels, has much resemblance to the cloud following ζ *Orionis*. The fainter parts embrace the 5th magnitude star B.D. $-7^{\circ}.1152 = d$ *Orionis*.

Königstuhl-Heidelberg Astrophysical Observatory:
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On the Period and Light Curve of (7514) UY Cygni.

R.A. = $20^{\text{h}} 52^{\text{m}} 16^{\text{s}}$, Decl. = $+30^{\circ} 2' 8''$ (1900).

By A. Stanley Williams.

The observations on which the following results are based number altogether 238, and consist of 12 photographic observations from plates taken with a 4.4-inch portrait lens, 41 visual observations made with a $2\frac{3}{4}$ -inch refractor, and 185 made with a $6\frac{1}{2}$ -inch reflector. But 15 of these 238 observations were rejected owing to their having been marked as uncertain, or as

* For the history of this nebula see the note by Miss Clerke to my article in the *Journal Br. Astr. Assoc.* 1890, p. 252.